CUSTOMER NO.: 38107

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of J. KAHLERT, et al.	)	Examiner: C. NGO
	)	Art Unit: 2617
Serial No.: 10/599,413	)	Confirmation: 6122
Filed: September 28, 2006	)	
For: **LOCATION-BASED HANDOFF FOR MOBILE DEVICES**	)	
Date of Final Rejection / Advisory Action: April 29, 2009 / July 7, 2009	)	
Attorney Docket No.: PHUS040178US3/PKRZ200880	)	Cleveland, OH 44114 September 22, 2009

BRIEF ON APPEAL

CERTIFICATE OF ELECTRONIC TRANSMISSION

I certify that this **BRIEF ON APPEAL** and accompanying documents in connection with U.S. Serial No. 10/599,413 is being filed on the date indicated below by electronic transmission with the United States Patent and Trademark Office via the electronic filing system (EFS-Web).

Sept 22 2009
Date

Patricia A Heim
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I. STATEMENT OF REAL PARTY IN INTEREST (41.37(f))

The real party in interest for this appeal and the present application is Koninklijke Philips Electronics, N.V.

II. STATEMENT OF RELATED CASES (41.37(g))

None.

III. JURISDICTIONAL STATEMENT (41.37(h))

The Board has jurisdiction under 35 U.S.C. 134(a).

The Examiner mailed a final rejection on April 29, 2009, setting a three-month shortened statutory period for response.

The time for responding to the final rejection expired on July 29, 2009. Rule 134.

A Notice of Appeal was filed on July 29, 2009.

The time for filing an Appeal Brief is two months after the filing of a Notice of Appeal. Bd.R. 41.37(c). The time for filing an Appeal Brief ends on September 29, 2009.

The Appeal Brief (and Supplemental Amendment D (Accompanying Appeal Brief)) are being filed on the date set forth on the Certificates of Transmission.

IV. TABLE OF CONTENTS (41.37(i))

V. TABLE OF AUTHORITIES (41.37(j))

Not applicable.

VI. STATUS OF AMENDMENTS (41.37(l))

Amendment C of June 29, 2009 has been entered.

Supplemental Amendment D (Accompanying Appeal Brief) is being filed herewith. Because it only corrects minor typographical errors, it is believed that it will be entered.

VII. GROUNDS OF REJECTION TO BE REVIEWED (41.37(m))

Whether each of claims 1, 4, and 6-26 distinguish patentably and unobviously over the Lee (US 2004/0039817) as modified by Gunnarsson (US 2003/0118015).

VIII. STATEMENT OF FACTS (41.37(n))

1. The QBSS Load value is a measure of what percentage of the capacity of each access point is in use (paragraph [0041] of Lee).

2. The QBSS Load value is independent of the signal strength (paragraph [0041] of Lee, particularly line 7).

3. Lee suggests either active scanning or passive scanning (Lee, paragraph [0006]).

4. In active scanning, the wireless station of Lee sends out a probe to solicit responses from access points in the area and in the passive station merely listens for beacon frames (Lee, paragraph [0006]).

5. The wireless station of Lee then picks the access point with the strongest signal (Lee, paragraph [0006]).

6. In active scanning, the station of Lee measures the received signal strength (RSSI) and the network or channel loading (QBSS Load) (Lee, paragraph [0035]).

7. The access point of Lee is selected based on signal strength and the loading of the access point (Lee, paragraphs [0036], [0038]).

8. The signal strength, frequency, and loading of each access point of Lee from which the station receives a response is saved (Lee, paragraph [0038]).

9. Gunnarsson calls for notifying a user when they are in the vicinity of WLAN. The mobile device can automatically turn on the

WLAN interface when it is near a WLAN. (Gunnarsson, paragraph [0018]).

10. Gunnarsson indicates that the mobile terminal can determine its location by triangulation relative to three or more base stations using relative signal strengths, relative signal propagation delays, relative phase shifts, and the like of signals transmitted by the mobile terminal (Gunnarsson, paragraph [0021]).

11. Paragraphs [0018] and [0021] of Gunnarsson disclose determining a location of a mobile device, but make no suggestion that one could or should make any determination regarding how accurately that location was determined.

12. Paragraph [0018] of Gunnarsson says nothing about predicting locations of a user nor any suggestion of a map of access points.

13. Paragraphs [0018] and [0021] of Gunnarsson are completely silent about determining either a speed or direction of movement of a mobile unit.

IX. ARGUMENT (41.37(o))

A. Claims 1, 4, and 6-8 Distinguish Patentably over Lee and Gunnarsson

Claim 1 calls for a memory storing a map of access points and relative signal strengths from the access points at predefined locations in the defined space (claim 1, lines 9-11). The Examiner refers the applicant to paragraph 47 of Lee and the QBSS Load value. However, the QBSS Load value is a measure of what percentage of the capacity of each access point is in use (Lee, paragraph [0041]). The QBSS Load value is independent of the signal strength (Lee, paragraph [0041], particularly line 7). Thus, contrary to the Examiner's assertions, Lee does not disclose a memory which stores a map of access points and relative signal strengths.

Claim 1 also calls for a means for calculating a location of a selected mobile unit relative to the map by comparing the actual signal strengths with the map of relative signal strengths at predetermined locations in the defined space. (claim 1, lines 16-19). The Examiner asserts that this is shown by paragraphs [0006] and [0035] of Lee, particularly step 122. Lee suggests either active scanning or passive scanning (Lee, paragraph [0006]). In active scanning, the wireless station sends out a probe to solicit responses from access points in the area and in the passive station merely listens for beacon frames (Lee, paragraph

[0006]). The wireless station then picks the access point with the strongest signal (Lee, paragraph [0006]). By merely selecting the access point with the strongest signal, the wireless stations of Lee are making no determination of location in the defined space. Indeed, although the wireless station may know which access point signal is strongest, it does not know which direction that access point is or how far away it is. In active scanning, the wireless station measures the received signal strength (RSSI) and the network or channel loading (QBSS Load) (Lee, paragraph [0035]). Thus, in Lee, the access point is selected based on signal strength and the loading (available capacity) of the available access point (Lee, paragraphs [0036], [0038]). The signal strength, frequency, and loading of each access point from which the station receives a response is saved (Lee, paragraph [0038]). Most significant by its absence, is that the wireless station of Lee makes no determination of its location in a defined space. This becomes very significant in conjunction with the next discussed limitation.

Claim 1 further calls for predicting the future locations of the mobile unit (claim 1, lines 26-27). Because Lee does not know where the wireless station is, it has no ability to predict future locations of the station. Paragraphs [0018] and [0021] of Gunnarsson, referenced by the Examiner, fail to cure this shortcoming of Lee. Paragraph [0018] of Gunnarsson says nothing about predicting locations of a user nor any

suggestion of a map of access points. Rather, Gunnarsson calls for notifying a user when they are in the vicinity of WLAN. The mobile device can automatically turn on its WLAN interface when it is near a WLAN. (Gunnarsson, paragraph [0018]). Turning on a mobile unit when it is in the vicinity of a WLAN says nothing about a map with relative access point signal strengths, nor determining a location of a mobile unit based on such a map of relative signal strengths, nor predicting future locations of the mobile unit. Paragraph [0021] of Gunnarsson indicates that the mobile terminal can determine its location by triangulation relative to three or more base stations using relative signal strengths, relative signal propagation delays, relative phase shifts, and the like of signals transmitted by the mobile terminal (Gunnarsson, paragraph [0021]). Thus, paragraph [0021] of Gunnarsson discloses a triangulation method of determining location and does not disclose or fairly suggest determining location based on a map of signal strengths at locations in a predefined space. More particularly, paragraph [0021] of Gunnarsson does not disclose and makes no suggestion that one could or should predict future locations of a mobile unit.

Claim 1 calls for an assigning means which assigns the nearby access points based on the predicted location of the mobile unit and the map (claim 1, lines 28-29). Because neither Lee nor Gunnarsson predict locations of a mobile unit, and because neither Lee nor Gunnarsson

disclose or fairly suggest a map of relative signals strengths at predefined locations, neither can, does, or suggests assigning access points based on predicted location and the map. Rather, Lee assigns access points based on relative signal strength and the channel loading of available access points. Gunnarsson does not assign access points. Rather, Gunnarsson alerts the user or the mobile device when they are in the vicinity of a WLAN. Again, being in the vicinity of a WLAN is determined on a basis other than predicted location and a map of relative signal strengths in a defined space. Moreover, rather than assign access points, in Gunnarsson, the mobile device is told that it is near one or more WLANs, the mobile device looks for and finds a WLAN and connects itself to the found access point.

Accordingly, it is submitted that claim 1 and claims 4 and 6-8 distinguish patentably and unobviously over the references of record.

B. Claim 4 Distinguishes Patentably Over the References of Record

Claim 4 calls for a velocity estimating means for determining speed and direction of movement of the mobile unit (claim 4, lines 3-4). The Examiner does not suggest that Lee discloses such a velocity estimating means nor does Lee disclose one. The Examiner again refers the applicant to paragraphs [0018] and [0021] of Gunnarsson, both of

which are completely silent about determining either a speed or direction of movement of a mobile unit. Rather, these paragraphs of Gunnarsson merely disclose determining the location of a mobile unit.

Accordingly, it is submitted that claim 4 distinguishes yet more forcefully over Lee and Gunnarsson.

C. Claims 6 and 7 Distinguish Patentably Over the References of Record

Claim 6 calls for estimating a degree of accuracy of the calculated location. Again, the Examiner does not assert that this limitation is disclosed by Lee, and relies instead on paragraphs [0018] and [0021] of Gunnarsson. These paragraphs of Gunnarsson again disclose determining a location of a mobile device, but make no suggestion that one could or should make any determination regarding how accurately that location was determined.

Accordingly, it is submitted that claim 6 and claim 7 dependent therefrom distinguish yet more forcefully over Lee and Gunnarsson.

D. Claim 7 Distinguishes Patentably Over the References of Record

Claim 7 calls for the number of access points assigned to the mobile unit to be a function of the location accuracy. Neither Lee nor Gunnarsson disclose that the access points should be assigned based on

location accuracy. Rather, Lee assigns access points, as discussed above, based on signal strength and channel loading. The mobile device of Gunnarsson looks for WLANs and latches onto whatever WLAN it finds. Presumably if Gunnarsson finds two or more WLANs, it has some criteria for selecting among them. However, the Examiner points to no portion of Gunnarsson which makes this selection based on location accuracy.

Accordingly, it is submitted that claim 7 distinguishes patentably over the references of record.

E. Claim 8 Distinguishes Patentably Over the References of Record

Claim 8 is directed to the means for creating the map of access points and relative signal strengths of signals from the access points at predefined locations in the defined space. As discussed above, neither Lee nor Gunnarsson disclose or fairly suggest such a map and consequently have no means for creating such a map.

Accordingly, it is submitted that claim 8 distinguishes patentably and unobviously over the references of record.

F. Claims 9-15, 17, and 21-23 Distinguish Patentably Over the References of Record

Claim 9 again calls for a predefined map of relative signal strengths at predefined locations in the defined space. As discussed above, neither Lee nor Gunnarsson disclose or fairly suggest a map of relative signal strengths at predefined locations in a defined space.

Claim 9 further calls for identifying from the predefined map a current plurality of access points neighboring the current location which was determined from the map which have the strongest signals at the current location. As discussed above, Lee identifies access points by measuring actual signal strengths by either the active or passive method. There is no suggestion in Lee of using a map which describes the access points which should have the strongest signal. Gunnarsson does not identify a plurality of access points. Rather, Gunnarsson merely tells the user of the mobile device that is near a WLAN and should start looking for signals. Gunnarsson makes no suggestion of identifying WLANs which should have the strongest signal. Rather, Gunnarsson merely tells the mobile unit that it is near some WLAN and should start looking.

Accordingly, it is submitted that claim 9 and claims 10-15, 17, and 21-23 dependent therefrom distinguish patentably over the references of record.

G. Claims 10-12 Distinguish Patentably Over the References of Record

Claim 10 calls for identifying the frequencies assigned to access points which are nearest to the calculated location of the selected mobile device and tracking movement of the mobile device by scanning only those frequencies. Lee does not track the mobile device. Rather, the mobile device of Lee actively or passively gets signals from nearby access points and selects one to which it will connect. Gunnarsson does not cure this shortcoming of Lee. Gunnarsson determines the location of the mobile terminal by other means such as with a GPS system, triangulation, or the like. However, there is no suggestion in either Lee or Gunnarsson of the time saving technique of determining only the frequencies of nearby access points and then scanning only those frequencies, instead of all frequencies of the system, to track movement of the mobile device.

Accordingly, it is submitted that claim 10 and claims 11 and 12 dependent therefrom distinguish patentably over the references of record.

H. Claim 13 Distinguishes Patentably Over the References of Record

Claim 13 calls for estimating a speed and direction of movement of the mobile device. Paragraphs [0018] and [0021] of Gunnarsson

referenced by the Examiner suggest only determining the location of the mobile device and not its speed or direction.

Claim 13 further calls for predicting a future location of the mobile device. Paragraphs [0018] and [0021] of Gunnarsson referenced by the Examiner only suggest determining the current location and make no suggestion of predicting future locations.

Accordingly, it is submitted that claim 13 distinguishes patentably over the references of record.

I. Claim 14 Distinguishes Patentably Over the References of Record

Claim 14 addresses the method of generating the map of relative signal strengths at predetermined locations in a defined space. As discussed above, neither Lee nor Gunnarsson disclose or fairly suggest such a map, much less the enumerated steps of claim 14 by which such a map is generated.

Accordingly, it is submitted that claim 14 and claims 15, 17, and 21 dependent therefrom distinguish patentably over the references of record.

J. Claims 15, 17, and 21 Distinguish Patentably Over the References of Record

Claim 15 calls for determining a certainty of an accuracy of the calculated location. Paragraphs [0018] and [0021] of Gunnarsson referenced by the Examiner disclose determining location, but make no suggestion of determining a certainty of an accuracy of the determined location.

Accordingly, it is submitted that claim 15 and claims 17 and 21 dependent therefrom distinguish patentably over the references of record.

K. Claim 21 Distinguishes Patentably Over the References of Record

Claim 21 calls for the number of nearest access points to be a variable based on a certainty of the location calculation accuracy. As discussed above, Lee does not determine location of a mobile device. Although Gunnarsson determines location, there is no suggestion in paragraphs [0018] or [0021] of Gunnarsson or other parts of Gunnarsson of determining the accuracy of the location determination, much less any suggestion that the number of available access points should be based on the determined certainty. Gunnarsson makes no suggestion of controlling the number of WLANs which are accessible. Lee determines the access points based on signal strength and channel loading, not on a certainty with which the location of the mobile device is determined.

Accordingly, it is submitted that claim 21 distinguishes patentably over the references of record.

L. Claims 16 and 18-20 Distinguish Patentably Over the References of Record

Claim 18 calls for generating a map of relative signal strengths at predefined locations in a defined space. By contrast, the mobile station of Lee merely determines relative strengths of nearby stations and does not generate a map of relative signal strengths, much less a map of relative signals strengths at predefined locations in a predefined space.

Claim 18 calls for mapping the signal strengths to locations in the defined space. Neither Lee nor Gunnarsson disclose or fairly suggest mapping signal strengths to locations in a defined space.

Claim 18 further calls for tracking movement by scanning the frequencies of nearby access points, measuring their signal strengths, and calculating a location of the mobile device by comparing the actual signal strengths with the map of relative signal strengths at predefined locations in the identified space. Again, neither Lee nor Gunnarsson have such a map. In Lee, the mobile station merely looks for the strongest signals without regard to any map. Gunnarsson alerts or turns on the mobile device when it is proximate to a WLAN, but does not make a determination of proximity to a WLAN based on comparing actual signal

strengths with a map of relative signal strengths at predefined locations in a defined space. Thus, Gunnarsson uses a different technique to determine the relative proximity of the mobile device and a WLAN.

Claim 18 further calls for determining a certainty of an accuracy of a calculated location. Lee, as discussed above, just searches for strong signals. Gunnarsson is silent as to any determination of determining a certainty of an accuracy of the calculated location.

Claim 18 further calls for scanning a large number of access points if the certainty is below a threshold. Neither Lee nor Gunnarsson make any suggestion of a threshold, particularly a threshold based on certainty of accuracy of location, as the basis for determining what number of access points are to be scanned. Neither Lee nor Gunnarsson make any determination of a number of access points should be scanned.

Accordingly, it is submitted that claim 18 and claims 16, 19, and 20 dependent therefrom distinguish patentably over the references of record.

M. **Claim 16 Distinguishes Patentably Over the References of Record**

Claim 16 calls for adjusting a number of nearest access points whose frequencies are scanned based on the certainty of the location calculation accuracy. Again, neither Lee nor Gunnarsson determine a

certainty of an accuracy of the calculated location, much less adjust a number of access points which are scanned based on such determined certainty of the location of accuracy.

Accordingly, it is submitted that claim 16 distinguishes patentably over the references of record.

N. Claim 19 Distinguishes Patentably Over the References of Record

Claim 19 calls for selecting access points based on a recalculated certainty. Again, neither Lee nor Gunnarsson calculate, much less recalculate, a certainty.

Accordingly, it is submitted that claim 19 distinguishes patentably over the references of record.

O. Claim 20 Distinguishes Patentably Over the References of Record

Claim 20 calls for repeating the recalculation of the certainty until a threshold is exceeded. Neither Lee nor Gunnarsson calculate a certainty, much less recalculate such certainty until a threshold is exceeded.

Accordingly, it is submitted that claim 20 distinguishes patentably over the references of record.

P. **Claims 24-26 Distinguish Patentably Over the References of Record**

Claim 24 calls for a map of relative signal strengths at predefined locations within a defined space. Again, neither Lee nor Gunnarsson disclose or are asserted by the Examiner to disclose a map of relative signal strengths at predefined locations in a defined space.

Claim 24 calls for calculating a location of a mobile device by comparing actual signal strengths with the map of relative signal strengths. Lee does not calculate the location of the mobile devices. It merely accesses access points which have appropriate signal strengths and channel loading. Gunnarsson calculates location of a mobile device, such as by using a GPS, but makes no suggestion that the location of the mobile device can be determined by comparing actual signal strengths received by the mobile device with a map of relative signal strengths at predetermined locations in the defined space.

Claim 24 calls for assigning access points based on the calculated location and the map. The mobile device of Lee selects its access point based on signal strength and channel loading. Gunnarsson does not assign access points. Rather, Gunnarsson just alerts the mobile device to start looking for WLANs. No one (or more) WLANs are assigned to it. Moreover, the access points are not determined based on a map of relative signal strengths at predetermined locations in the defined space.

Accordingly, it is submitted that claim 24 distinguishes patentably and unobviously over the references of record.

Q. Claim 25 Distinguishes Patentably Over the References of Record

Claim 25 calls for the map to depict a location of each access point and the relative signal strengths of signals from each of the access points at a multiplicity of locations in the defined space. Neither Lee nor Gunnarsson disclose or are asserted by the Examiner to disclose a map of relative signal strengths of signals from each of the access points and a multiplicity of locations in a defined space. Neither Lee nor Gunnarsson have any reason to generate such a map, because both use different techniques for deciding to which access point to connect or when to start looking for a WLAN.

Accordingly, it is submitted that claim 25 distinguishes patentably over the references of record.

R. Claim 26 Distinguishes Patentably Over the References of Record

Claim 26 describes the generation or creation of the map. Not only do neither Lee nor Gunnarsson disclose a map of relative signal strengths at predefined locations in a defined space, neither does or has reason to generate such a map.

Accordingly, it is submitted that claim 26 distinguishes patentably over the references of record.

S. Conclusion

For all of the reasons discussed above, it is respectfully submitted that claims 1, 4, and 6-26 distinguish patentably over Lee and Gunnarsson. For all of the above reasons, a reversal of the rejections of all claims is requested.

Respectfully submitted,

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APPENDIX

X. CLAIMS SECTION (41.37(p)) – (ASSUMING ENTRY OF SUPPLEMENTAL AMENDMENT D (ACCOMPANYING APPEAL BRIEF))

1. (Rejected) A communications system comprising:

a plurality of mobile wireless units movably located within a defined space of a wireless local area network;

a plurality of fixed access points disposed at known locations in the defined space, each access point operating at a dedicated frequency different from the dedicated frequency of its nearest neighbor access points;

a means for tracking movement of at least one mobile unit within the defined space including

a memory storing a map of the access points and relative signal strengths of signals from the access points at predefined locations in the defined space,

a means for scanning identified scanning frequencies of access points nearby a selected one of the mobile wireless units to measure actual signal strengths between the selected mobile unit and each of the nearby access points, and

a means for calculating a location of the selected mobile unit relative to the map by comparing the actual signal

strengths with the map of relative signal strengths at predefined locations in the defined space;

a means for assigning the nearby access points with strongest signals at the calibrated location to the selected mobile unit based on the map of relative strengths in the defined space and communicating the dedicated frequencies of the nearby access points to the selected mobile unit;

wherein the tracking means tracks the movement of the selected mobile unit by periodically scanning the frequencies of the assigned access points adjacent the calculated location and predicts future locations of the selected mobile unit;

wherein the assigning means assigns the nearby access points based on the predicted location of the selected mobile unit and the map;

wherein the scanning means only scans the frequencies of the assigned nearby access points.

2-3. (Cancelled)

4. (Rejected) The system as set forth in claim 1, wherein the position tracking means includes:

a velocity estimating means for determining speed and direction of movement of the selected mobile unit.

5. (Cancelled)

6. (Rejected) The system as set forth in claim 1, further including:

a means for determining a degree of certainty of an accuracy of the calculated location.

7. (Rejected) The system as set forth in claim 6, wherein the number of nearby access points assigned to the selected mobile unit is a function of location accuracy certainty and the tracking means tracks the movement of the at least one mobile unit by periodically scanning only the frequencies of the access points assigned to the selected mobile unit.

8. (Rejected) The system as set forth in claim 1, further including a means for creating the map including:

a means for measuring a plurality of initial signal strengths at predefined locations within the defined space;

a means for mapping the initial signal strengths in relation to predefined locations in the defined space;

a means for identifying locations and scanning frequencies of the access points in the defined space; and

a means for creating the map and loading in the memory.

9. (Rejected) In a wireless local area network, a method for handing off a selected mobile device from one access point to another, each access point having a dedicated frequency different from the dedicated frequency of nearby access points, the method comprising:

tracking a movement of the selected mobile device within the defined space including:

scanning the dedicated frequencies assigned to each of an identified plurality of access points neighboring a last calculated location of the selected mobile device,

measuring actual signal strengths at each of the frequencies assigned to the access points neighboring the last calculated location of the selected mobile device, and

calculating a current location of the mobile device by comparing the actual signal strengths at each of the frequencies assigned to the access points neighboring the last calculated location with a predefined map of relative signal strengths at predefined locations in the defined space; and

based on the predefined map and the calculated current location, identifying from the predefined map a current plurality of the access

points neighboring the current calculated location with the strongest signals at the current calculated location; and

assigning the current plurality of access points with strongest signals to the selected mobile device.

10. (Rejected) The method as set forth in claim 9, further including:

identifying the dedicated frequencies assigned to access points which are nearest to the last calculated location of the selected mobile device; and

tracking the movement of the selected mobile device by periodically scanning only the frequencies of the access points nearest to the last calculated location.

11. (Rejected) The method as set forth in claim 10, further including:

tracking the movement of the at least one mobile device by periodically scanning the frequencies of three of the access points nearest the last calculated location.

12. (Rejected) The method as set forth in claim 10, further including:

updating the frequencies of the nearest access points as the selected mobile device changes location.

13. (Rejected) The method as set forth in claim 9, further including:

estimating at least a speed and a direction of movement of the selected mobile device;

predicting a future location of the selected mobile device from the estimated speed and direction; and

reassigning the access points to the selected device based on the predicted location and the map.

14. (Rejected) The method as set forth in claim 9, further including, before tracking movement, generating the map by:

measuring a plurality of initial signal strengths at a plurality of measurement locations within a defined space;

mapping the initial signal strengths in relation to the plurality of measurement locations in the defined space;

identifying a plurality of locations and scanning frequencies of the access points located in the defined space; and

combining the signal strengths at the plurality of measurement locations and the access point locations and the frequency assigned to each access point into the map.

15. (Rejected) The method as set forth in claim 14, further including:

determining a certainty of an accuracy of the calculated location of the mobile device.

16. (Rejected) The method as set forth in claim 18, further including:

based on the certainty of the location calculation accuracy, adjusting a number of nearest access points whose frequencies are scanned; and

tracking the movement of the mobile device by periodically scanning the frequencies of the currently nearest access points.

17. (Rejected) The method as set forth in claim 15, further including:

comparing the determined certainty with a requested threshold.

18. (Rejected) In a wireless local area network, a method for handing off at least one mobile device from one access point {to another, the method comprising:

generating a map of relative signal strengths at predefined locations in the defined space including:

measuring a plurality of initial signal strengths at predefined locations within a defined space;

mapping the initial signal strengths in relation to locations in the defined space; and

identifying a plurality of locations and scanning frequencies of the access points located in the defined space;

tracking a movement of the at least one mobile device within the defined space including:

(a) scanning identified scanning frequencies corresponding to each of an identified plurality of nearby access points;

(b) measuring actual signal strengths at each of the identified frequencies between the at least one mobile device and the identified access points, and calculating at least a location of the at least one mobile device by comparing the actual signal strengths with the map of relative signal strengths at predefined locations in the defined space;

(c) determining a certainty of an accuracy of the calculated location of the mobile device;

(d) comparing the determined certainty with a requested threshold;

(e) in response to the certainty being below the requested threshold, scanning the scanning frequencies of a large number of the access points located in the defined space;

(f) measuring actual signal strengths at each of the scanning frequencies between the at least one mobile device and the corresponding access point;

(g) organizing the measured signal strengths in a categorized list;

(h) recalculating the location of the at least one mobile device;

(i) recalculating a certainty of an accuracy of the recalculated location of the mobile device; and

(j) comparing the recalculated certainty with the requested threshold.

19. (Rejected) The method as set forth in claim 18, further including:

in response to the recalculated certainty being greater than the requested threshold, selecting at least three access points from the categorized list based on signal strengths.

20. (Rejected) The method as set forth in claim 18, further including:

in response to the recalculated certainty being below the requested threshold, measuring the number of the scanning frequencies from the categorized list;

repeating steps (h)-(j) until the threshold is exceeded; and {

identifying a set of optimal scanning frequencies.

21. (Rejected) The method as set forth in claim 15, wherein a number of nearest access points is a variable based on the determined certainty of the location calculation accuracy.

22. (Rejected) The method as set forth in claim 18, wherein the frequencies of the nearby access points are different.

23. (Rejected) The method as set forth in claim 9, further including:

handing off a plurality of mobile devices in the defined space;

evaluating an overall distribution of the mobile devices in the defined space to determine a capacity of each access point; and

assigning the nearest access points to each mobile device based at least on both the determined capacity and the actual signal strength.

24. (Rejected) A communications system comprising:

a plurality of mobile wireless units located within a defined space of a wireless local area network;

a plurality of access points disposed at known locations in the defined space, each access point operating at a dedicated frequency;

a computer processor for tracking movement of the mobile units and reassigning frequencies of closest access points to each mobile unit, the computer processor being programmed to perform the steps of:

scanning identified scanning frequencies corresponding to each of an identified plurality of nearby access points,

measuring actual signal strengths at each of the identified frequencies between the at least one mobile device and the identified access points,

calculating at least a location of the at least one mobile device by comparing the actual signal strengths with a map of relative signal strengths at predefined locations in the defined space; and

assigning nearby access points with strongest signals to the at least one mobile unit based on the calculated location and the map.

25. (Rejected) The communication system as set forth in claim 24, further including:

a memory in which the map is stored and wherein the map depicts a location of each access point in defined space and relative signal strengths of signals from each of the access points at a multiplicity locations in the defined space.

26. (Rejected) The communication system as set forth in claim 24, wherein the map is a predefined map generated prior to tracking movement of the mobile units by the steps of:

measuring a plurality of initial signal strengths at a plurality of measurement locations within a defined space;

mapping the initial signal strengths in relation to the plurality of measurement locations in the defined space;

identifying a plurality of locations and scanning frequencies of the access points located in the defined space; and

combining the signal strengths at the plurality of measurement locations and the access point locations and the frequency assigned to each access point into the map.

APPENDIX (Continued)

XI. CLAIM SUPPORT AND DRAWING ANALYSIS SECTION (41.37(r))

1. A communications system comprising:

a plurality of mobile wireless units **{12_1, 12_2, ..., 12_n}** movably located within a defined space **{16}** of a wireless local area network **{10}**; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a plurality of fixed access points **{14_1, 14_2, ..., 14_n}** disposed at known locations in the defined space **{16}**, each access point **{14_1, 14_2, ..., 14_n}** operating at a dedicated frequency different from the dedicated frequency of its nearest neighbor access points **{14_1, 14_2, ..., 14_n}**; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a means **{50}** for tracking movement of at least one mobile device **{12_1}** within the defined space **{16}** including:**{p. 5, l. 3 – p. 6, l. 28}**

a memory **{42}** storing a map of the access points **{14_1, 14_2, ..., 14_n}** and relative signal strengths of signals from the access points **{14_1, 14_2, ..., 14_n}** at predefined locations in the defined space **{16}**, **{p. 5, l. 3 - 13}**

a means **{52}** for scanning identified scanning frequencies of access points **{14_1, 14_2, ..., 14_n}** nearby a selected one of the mobile wireless units **{12_1}** to measure

actual signal strengths between the selected mobile unit **{12_1}** and each of the nearby access points **{14_1, 14_2, ..., 14_n}**, and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

a means **{56}** for calculating a location of the selected mobile unit **{12_1}** relative to the map by comparing the actual signal strengths with the map of relative signal strengths at predefined locations in the defined space **{16}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

a means **{60}** for assigning the nearby access points **{14_1, 14_2, ..., 14_n}** with strongest signals at the calibrated location to the selected mobile unit **{12_1}** based on the map of relative strengths in the defined space **{16}** and communicating the dedicated frequencies of the nearby access points **{14_1, 14_2, ..., 14_n}** to the selected mobile unit **{12_1}**; **{p. 6, l. 3 – 10; p. 6, l. 29 – p. 7, l. 6}**

wherein the tracking means **{50}** tracks the movement of the selected mobile unit **{12_1}** by periodically scanning the frequencies of the assigned access points **{14_1, 14_2, ..., 14_n}** adjacent the calculated location and predicts future locations of the selected mobile unit **{12_1}**; **{p. 6, l. 11 – 28}**

wherein the assigning means **{60}** assigns the nearby access points **{14_1, 14_2, ..., 14_n}** based on the predicted location of the selected mobile unit **{12_1}** and the map; **{p. 6, l. 3 – p. 7, l. 6}**

wherein the scanning means **{52}** only scans the frequencies of the assigned nearby access points **{14_1, 14_2, ..., 14_n}**. **{p. 5, l. 14 – p. 6, l. 10}**

4. The system as set forth in claim 1, wherein the position tracking means **{50}** includes:

a velocity estimating means **{66}** for determining speed and direction of movement of the selected mobile unit **{12_1}**. **{p. 6 l. 21 – 28}**

6. The system as set forth in claim 1, further including:

a means **{72}** for determining a degree of certainty of an accuracy of the calculated location. **{p. 8, l. 17 – p. 9, l. 7}**

7. The system as set forth in claim 6, wherein the number of nearby access points **{14_1, 14_2, ..., 14_n}** assigned to the selected mobile unit **{12_1}** is a function of location accuracy certainty and the tracking means **{50}** tracks the movement of the at least one mobile device **{12_1}** by periodically scanning only the frequencies of the access points **{14_1, 14_2, ..., 14_n}** assigned to the selected mobile unit **{12_1}**. **{p. 8, l. 8 – p. 9, 7}**

8. The system as set forth in claim 1, further including a means for creating the map including:

a means **{38}** for measuring a plurality of initial signal strengths at predefined locations within the defined space **{16}**; **{p. 5, l. 3 – 13}**

a means **{40}** for mapping the initial signal strengths in relation to predefined locations in the defined space **{16}**; **{p. 5, l. 3 – 13}**

a means **{62}** for identifying locations and scanning frequencies of the access points in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

a means **{40}** for creating the map and loading in the memory {42}. **{p. 5, l. 3 – 13}**

9. In a wireless local area network **{10}**, a method for handing off a selected mobile device **{12_1}** from one access point **{14_1, 14_2, ..., 14_n}** to another, each access point **{14_1, 14_2, ..., 14_n}** having a dedicated frequency different from the dedicated frequency of nearby access points **{14_1, 14_2, ..., 14_n}**, the method comprising: **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

tracking a movement of the selected mobile device **{12_1}** within the defined space **{16}** including: **{p. 5, l. 3 – p. 6, l. 28}**

scanning the dedicated frequencies assigned to each of an identified plurality of access points **{14_1, 14_2, ..., 14_n}** neighboring a last calculated location of the selected mobile device **{12_1}**, **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

measuring actual signal strengths at each of the frequencies assigned to the access points **{14_1, 14_2, ..., 14_n}** neighboring the last calculated location of the selected mobile device **{12_1}**, and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

calculating a current location of the mobile device **{12_1}** by comparing the actual signal strengths at each of the frequencies assigned to the access points **{14_1, 14_2, ..., 14_n}** neighboring the last calculated location with a predefined map of relative signal strengths at predefined locations in the defined space **{16}**; and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

based on the predefined map and the calculated current location, identifying from the predefined map a current plurality of the access points **{14_1, 14_2, ..., 14_n}** neighboring the current calculated location with the strongest signals at the current calculated location; and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

assigning the current plurality of access points **{14_1, 14_2, ..., 14_n}** with strongest signals to the selected mobile device **{12_1}**. **{p. 6, l. 3 – 10; p. 6, l. 29 – p. 7, l. 6}**

10. The method as set forth in claim 9, further including:

identifying the dedicated frequencies assigned to access points **{14_1, 14_2, ..., 14_n}** which are nearest to the last calculated location of the selected mobile device **{12_1}**; and **{p. 5, l. 14 – p. 6, l. 3}**

tracking the movement of the selected mobile device **{12_1}** by periodically scanning only the frequencies of the access points **{14_1, 14_2, ..., 14_n}** nearest to the last calculated location. **{p. 6, l. 3 – 28}**

11. The method as set forth in claim 10, further including:

tracking the movement of the at least one mobile device **{12_1}** by periodically scanning the frequencies of three of the access points **{14_1, 14_2, ..., 14_n}** nearest the last calculated location. **{p. 6, l. 3 – 28}**

12. The method as set forth in claim 10, further including:

updating the frequencies of the nearest access points **{14_1, 14_2, ..., 14_n}** as the selected mobile device **{12_1}** changes location. **{p. 6, l. 29 – p. 7, l. 21}**

13. The method as set forth in claim 9, further including:

estimating at least a speed and a direction of movement of the selected mobile device **{12_1}**; **{p. 6 l. 21 – 28}**

predicting a future location of the selected mobile device **{12_1}** from the estimated speed and direction; and **{p. 6, l. 3 – p. 7, l. 6}**

reassigning the access points **{14_1, 14_2, ..., 14_n}** to the selected device **{12_1}** based on the predicted location and the map. **{p. 6, l. 29 – p. 7, l. 21}**

14. The method as set forth in claim 9, further including, before tracking movement, generating the map by:

measuring a plurality of initial signal strengths at a plurality of measurement locations within a defined space **{16}**;**{p. 5, l. 3 – 13}**

mapping the initial signal strengths in relation to the plurality of measurement locations in the defined space **{16}**; **{p. 5, l. 3 – 13}**

identifying a plurality of locations and scanning frequencies of the access points **{14_1, 14_2, ..., 14_n}** located in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

combining the signal strengths at the plurality of measurement locations and the access point locations and the frequency assigned to each access point **{14_1, 14_2, ..., 14_n}** into the map. **{p. 5, l. 3 – 13}**

15. The method as set forth in claim 14, further including:

determining a certainty of an accuracy of the calculated location of the mobile device **{12_1}**. **{p. 8, l. 17 – p. 9, l. 7}**

16. The method as set forth in claim 18, further including:

based on the certainty of the location calculation accuracy, adjusting a number of nearest access points **{14_1, 14_2, ..., 14_n}** whose frequencies are scanned; and **{p. 8, l. 8 – p. 9, l. 7}**

tracking the movement of the mobile device **{12_1}** by periodically scanning the frequencies of the currently nearest access points **{14_1, 14_2, ..., 14_n}**. **{p. 8, l. 8 – p. 9, l. 7}**

17. The method as set forth in claim 15, further including:

comparing the determined certainty with a requested threshold. **{p. 8, l. 8 – p. 9, l. 7}**

18. In a wireless local area network **{10}**, a method for handing off at least one mobile device **{12_1}** from one access point **{14_1, 14_2, ..., 14_n}** to another, the method comprising: **{p. 5, l. 14 – p. 8, l. 7}**

generating a map of relative signal strengths at predefined locations in the defined space **{16}** including: **{p. 5, l. 3 – 13}**

measuring a plurality of initial signal strengths at predefined locations within a defined space **{16}**; **{p. 5, l. 3 – 13}**

mapping the initial signal strengths in relation to locations in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

identifying a plurality of locations and scanning frequencies of the access points **{14_1, 14_2, ..., 14_n}** located in the defined space **{16}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

tracking a movement of the at least one mobile device **{12_1}** within the defined space **{16}** including: **{p. 5, l. 3 – p. 6, l. 28}**

(a) scanning identified scanning frequencies corresponding to each of an identified plurality of nearby access points **{14_1, 14_2, ..., 14_n}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

(b) measuring actual signal strengths at each of the identified frequencies between the at least one mobile device **{12_1}** and the identified access points **{14_1, 14_2, ..., 14_n}**, and calculating at least a location of the at least one mobile device **{12_1}** by comparing the actual signal strengths with a map of relative signal strengths at predefined locations in the defined space **{16}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

(c) determining a certainty of an accuracy of the calculated location of the mobile device **{12_1}**; **{p. 8, l. 17 – p. 9, l. 7}**

(d) comparing the determined certainty with a requested threshold; **{p. 8, l. 8 – p. 9, l. 7}**

(e) in response to the certainty being below the requested threshold, scanning the scanning frequencies of a large number of the access points **{14_1, 14_2, ..., 14_n}** located in the defined space **{16}**; **{p. 8, l. 8 – p. 9, l. 7}**

(f) measuring actual signal strengths at each of the scanning frequencies between the at least one mobile device **{12_1}** and the corresponding access point **{14_1, 14_2, ..., 14_n}**; **{p. 8, l. 8 – p. 9, l. 7}**

(g) organizing the measured signal strengths in a categorized list; **{p. 8, l. 8 – p. 9, l. 7}**

(h) recalculating the location of the at least one mobile device **{12_1}**; **{p. 8, l. 8 – p. 9, l. 7}**

(i) recalculating a certainty of an accuracy of the recalculated location of the mobile device **{12_1}**; and **{p. 8, l. 8 – p. 9, l. 7}**

(j) comparing the recalculated certainty with the requested threshold. **{p. 8, l. 8 – p. 9, l. 7}**

19. The method as set forth in claim 18, further including:

in response to the recalculated certainty being greater than the requested threshold, selecting at least three access points **{14_1, 14_2, ...,**

14_n} from the categorized list based on signal strengths. **{p. 8, l. 8 – p. 9, l. 7}**

20. The method as set forth in claim 18, further including:

in response to the recalculated certainty being below the requested threshold, measuring the number of the scanning frequencies from the categorized list; **{p. 8, l. 8 – p. 9, l. 7}**

repeating steps (h)-(j) until the threshold is exceeded; and **{p. 8, l. 8 – p. 9, 7}**

identifying a set of optimal scanning frequencies. **{p. 8, l. 8 – p. 9, l. 7}**

21. The method as set forth in claim 15, wherein a number of nearest access points **{14_1, 14_2, ..., 14_n}** is a variable based on the determined certainty of the location calculation accuracy. **{p. 8, l. 8 – 16}**

22. The method as set forth in claim 18, wherein the frequencies of the nearby access points **{14_1, 14_2, ..., 14_n}** are different. **{p. 3, l. 31 – p. 4 l. 15}**

23. The method as set forth in claim 9, further including:

handing off a plurality of mobile devices **{12_1, 12_2, ..., 12_n}** in the defined space **{16}**; **{p. 7, l. 6 – 21}**

evaluating an overall distribution of the mobile devices **{12_1, 12_2, ..., 12_n}** in the defined space **{16}** to determine a capacity of each access point **{14_1, 14_2, ..., 14_n}**; and **{p. 7, l. 6 – 21}**

assigning the nearest access points **{14_1, 14_2, ..., 14_n}** to each mobile device **{12_1, 12_2, ..., 12_n}** based at least on both the determined capacity and the actual signal strength. **{p. 7, l. 6 – 21}**

24. A communications system comprising:

a plurality of mobile wireless units **{12_1, 12_2, ..., 12_n}** located within a defined space **{16}** of a wireless local area network **{10}**; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a plurality of access points **{14_1, 14_2, ..., 14_n}** disposed at known locations in the defined space **{16}**, each access point **{14_1, 14_2, ..., 14_n}** operating at a dedicated frequency; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a computer processor **{26}** for tracking movement of the mobile units **{12_1, 12_2, ..., 12_n}** and reassigning frequencies of closest access points **{14_1, 14_2, ..., 14_n}** to each mobile unit **{12_1, 12_2, ..., 12_n}**, the computer processor **{26}** being programmed to perform the steps of: **{p. 5, l. 3 – p. 6, l. 28}**

scanning identified scanning frequencies corresponding to each of an identified plurality of nearby access points **{14_1, 14_2, ..., 14_n}**, **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

measuring actual signal strengths at each of the identified frequencies between the at least one mobile device **{12_1}** and the identified access points **{14_1, 14_2, ..., 14_n}**, **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

calculating at least a location of the at least one mobile device **{12_1}** by comparing the actual signal strengths with a map of relative signal strengths at predefined locations in the defined space **{16}**; and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

assigning nearby access points **{14_1, 14_2, ..., 14_n}** with strongest signals to the at least one mobile unit **{12_1}** based on the calculated location and the map. **{p. 6, l. 3 – 10; p. 6, l. 29 – p. 7, l. 6}**

25. The communication system as set forth in claim 24, further including:

a memory **{42}** in which the map is stored and wherein the map depicts a location of each access point **{14_1, 14_2, ..., 14_n}** in defined space and relative signal strengths of signals from each of the access points

{14_1, 14_2, …, 14_n} at a multiplicity locations in the defined space **{16}**. **{p. 5, l. 3 – 13}**

26. The communication system as set forth in claim 24, wherein the map is a predefined map generated prior to tracking movement of the mobile units**{12_1, 12_2, …, 12_n}** by the steps of: **{p. 5, l. 3 – 13}**

measuring a plurality of initial signal strengths at a plurality of measurement locations within a defined space **{16}**; **{p. 5, l. 3 – 13}**

mapping the initial signal strengths in relation to the plurality of measurement locations in the defined space **{16}**; **{p. 5, l. 3 – 13}**

identifying a plurality of locations and scanning frequencies of the access points **{14_1, 14_2, …, 14_n}** located in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

combining the signal strengths at the plurality of measurement locations and the access point locations and the frequency assigned to each access point **{14_1, 14_2, …, 14_n}** into the map. **{p. 5, l. 3 – 13}**

APPENDIX (Continued)

XII. MEANS OR STEP PLUS FUNCTION ANALYSIS SECTION (41.37(s))

1. A communications system comprising:

a plurality of mobile wireless units **{12_1, 12_2, ..., 12_n}** movably located within a defined space **{16}** of a wireless local area network **{10}**; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a plurality of fixed access points **{14_1, 14_2, ..., 14_n}** disposed at known locations in the defined space **{16}**, each access point **{14_1, 14_2, ..., 14_n}** operating at a dedicated frequency different from the dedicated frequency of its nearest neighbor access points **{14_1, 14_2, ..., 14_n}**; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a means **{50}** for tracking movement of at least one mobile device **{12_1}** within the defined space **{16}** including:**{p. 5, l. 3 – p. 6, l. 28}**

> a memory **{42}** storing a map of the access points **{14_1, 14_2, ..., 14_n}** and relative signal strengths of signals from the access points **{14_1, 14_2, ..., 14_n}** at predefined locations in the defined space **{16}**, **{p. 5, l. 3 - 13}**
>
> a means **{52}** for scanning identified scanning frequencies of access points **{14_1, 14_2, ..., 14_n}** nearby a selected one of the mobile wireless units **{12_1}** to measure

actual signal strengths between the selected mobile unit **{12_1}** and each of the nearby access points **{14_1, 14_2, …, 14_n}**, and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

a means **{56}** for calculating a location of the selected mobile unit **{12_1}** relative to the map by comparing the actual signal strengths with the map of relative signal strengths at predefined locations in the defined space **{16}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

a means **{60}** for assigning the nearby access points **{14_1, 14_2, …, 14_n}** with strongest signals at the calibrated location to the selected mobile unit **{12_1}** based on the map of relative strengths in the defined space **{16}** and communicating the dedicated frequencies of the nearby access points **{14_1, 14_2, …, 14_n}** to the selected mobile unit **{12_1}**; **{p. 6, l. 3 – 10; p. 6, l. 29 – p. 7, l. 6}**

wherein the tracking means **{50}** tracks the movement of the selected mobile unit **{12_1}** by periodically scanning the frequencies of the assigned access points **{14_1, 14_2, …, 14_n}** adjacent the calculated location and predicts future locations of the selected mobile unit **{12_1}**; **{p. 6, l. 11 – 28}**

wherein the assigning means **{60}** assigns the nearby access points **{14_1, 14_2, …, 14_n}** based on the predicted location of the selected mobile unit **{12_1}** and the map; **{p. 6, l. 3 – p. 7, l. 6}**

wherein the scanning means **{52}** only scans the frequencies of the assigned nearby access points **{14_1, 14_2, ..., 14_n}**. **{p. 5, l. 14 – p. 6, l. 10}**

4. The system as set forth in claim 1, wherein the position tracking means **{50}** includes:

a velocity estimating means **{66}** for determining speed and direction of movement of the selected mobile unit **{12_1}**. **{p. 6 l. 21 – 28}**

6. The system as set forth in claim 1, further including:

a means **{72}** for determining a degree of certainty of an accuracy of the calculated location. **{p. 8, l. 17 – p. 9, l. 7}**

7. The system as set forth in claim 6, wherein the number of nearby access points **{14_1, 14_2, ..., 14_n}** assigned to the selected mobile unit **{12_1}** is a function of location accuracy certainty and the tracking means **{50}** tracks the movement of the at least one mobile device **{12_1}** by periodically scanning only the frequencies of the access points **{14_1, 14_2, ..., 14_n}** assigned to the selected mobile unit **{12_1}**. **{p. 8, l. 8 – p. 9, 7}**

8. The system as set forth in claim 1, further including a means for creating the map including:

a means **{38}** for measuring a plurality of initial signal strengths at predefined locations within the defined space **{16}**; **{p. 5, l. 3 – 13}**

a means **{40}** for mapping the initial signal strengths in relation to predefined locations in the defined space **{16}**; **{p. 5, l. 3 – 13}**

a means **{62}** for identifying locations and scanning frequencies of the access points in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

a means **{40}** for creating the map and loading in the memory **{42}**. **{p. 5, l. 3 – 13}**

9. In a wireless local area network **{10}**, a method for handing off a selected mobile device **{12_1}** from one access point **{14_1, 14_2, ..., 14_n}** to another, each access point **{14_1, 14_2, ..., 14_n}** having a dedicated frequency different from the dedicated frequency of nearby access points **{14_1, 14_2, ..., 14_n}**, the method comprising: **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

tracking a movement of the selected mobile device **{12_1}** within the defined space **{16}** including: **{p. 5, l. 3 – p. 6, l. 28}**

scanning the dedicated frequencies assigned to each of an identified plurality of access points **{14_1, 14_2, ..., 14_n}** neighboring a last calculated location of the selected mobile device **{12_1}**, **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

measuring actual signal strengths at each of the frequencies assigned to the access points **{14_1, 14_2, …, 14_n}** neighboring the last calculated location of the selected mobile device **{12_1}**, and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

calculating a current location of the mobile device **{12_1}** by comparing the actual signal strengths at each of the frequencies assigned to the access points **{14_1, 14_2, …, 14_n}** neighboring the last calculated location with a predefined map of relative signal strengths at predefined locations in the defined space **{16}**; and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

based on the predefined map and the calculated current location, identifying from the predefined map a current plurality of the access points **{14_1, 14_2, …, 14_n}** neighboring the current calculated location with the strongest signals at the current calculated location; and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

assigning the current plurality of access points **{14_1, 14_2, …, 14_n}** with strongest signals to the selected mobile device **{12_1}**. **{p. 6, l. 3 – 10; p. 6, l. 29 – p. 7, l. 6}**

10. The method as set forth in claim 9, further including:

identifying the dedicated frequencies assigned to access points **{14_1, 14_2, ..., 14_n}** which are nearest to the last calculated location of the selected mobile device **{12_1}**; and **{p. 5, l. 14 – p. 6, l. 3}**

tracking the movement of the selected mobile device **{12_1}** by periodically scanning only the frequencies of the access points **{14_1, 14_2, ..., 14_n}** nearest to the last calculated location. **{p. 6, l. 3 – 28}**

11. The method as set forth in claim 10, further including:

tracking the movement of the at least one mobile device **{12_1}** by periodically scanning the frequencies of three of the access points **{14_1, 14_2, ..., 14_n}** nearest the last calculated location. **{p. 6, l. 3 – 28}**

12. The method as set forth in claim 10, further including:

updating the frequencies of the nearest access points **{14_1, 14_2, ..., 14_n}** as the selected mobile device **{12_1}** changes location. **{p. 6, l. 29 – p. 7, l. 21}**

13. The method as set forth in claim 9, further including:

estimating at least a speed and a direction of movement of the selected mobile device **{12_1}**; **{p. 6 l. 21 – 28}**

predicting a future location of the selected mobile device **{12_1}** from the estimated speed and direction; and **{p. 6, l. 3 – p. 7, l. 6}**

reassigning the access points **{14_1, 14_2, ..., 14_n}** to the selected device **{12_1}** based on the predicted location and the map. **{p. 6, l. 29 – p. 7, l. 21}**

14. The method as set forth in claim 9, further including, before tracking movement, generating the map by:

measuring a plurality of initial signal strengths at a plurality of measurement locations within a defined space **{16}**;**{p. 5, l. 3 – 13}**

mapping the initial signal strengths in relation to the plurality of measurement locations in the defined space **{16}**; **{p. 5, l. 3 – 13}**

identifying a plurality of locations and scanning frequencies of the access points **{14_1, 14_2, ..., 14_n}** located in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

combining the signal strengths at the plurality of measurement locations and the access point locations and the frequency assigned to each access point **{14_1, 14_2, ..., 14_n}** into the map. **{p. 5, l. 3 – 13}**

15. The method as set forth in claim 14, further including:

determining a certainty of an accuracy of the calculated location of the mobile device **{12_1}**. **{p. 8, l. 17 – p. 9, l. 7}**

16. The method as set forth in claim 18, further including:

based on the certainty of the location calculation accuracy, adjusting a number of nearest access points **{14_1, 14_2, ..., 14_n}** whose frequencies are scanned; and **{p. 8, l. 8 – p. 9, l. 7}**

tracking the movement of the mobile device **{12_1}** by periodically scanning the frequencies of the currently nearest access points **{14_1, 14_2, ..., 14_n}**. **{p. 8, l. 8 – p. 9, l. 7}**

17. The method as set forth in claim 15, further including:

comparing the determined certainty with a requested threshold. **{p. 8, l. 8 – p. 9, l. 7}**

18. In a wireless local area network **{10}**, a method for handing off at least one mobile device **{12_1}** from one access point **{14_1, 14_2, ..., 14_n}** to another, the method comprising: **{p. 5, l. 14 – p. 8, l. 7}**

generating a map of relative signal strengths at predefined locations in the defined space **{16}** including: **{p. 5, l. 3 – 13}**

measuring a plurality of initial signal strengths at predefined locations within a defined space **{16}**; **{p. 5, l. 3 – 13}**

mapping the initial signal strengths in relation to locations in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

identifying a plurality of locations and scanning frequencies of the access points **{14_1, 14_2, …, 14_n}** located in the defined space **{16}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

tracking a movement of the at least one mobile device **{12_1}** within the defined space **{16}** including: **{p. 5, l. 3 – p. 6, l. 28}**

(a) scanning identified scanning frequencies corresponding to each of an identified plurality of nearby access points **{14_1, 14_2, …, 14_n}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

(b) measuring actual signal strengths at each of the identified frequencies between the at least one mobile device **{12_1}** and the identified access points **{14_1, 14_2, …, 14_n}**, and calculating at least a location of the at least one mobile device **{12_1}** by comparing the actual signal strengths with a map of relative signal strengths at predefined locations in the defined space **{16}**; **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

(c) determining a certainty of an accuracy of the calculated location of the mobile device **{12_1}**; **{p. 8, l. 17 – p. 9, l. 7}**

(d) comparing the determined certainty with a requested threshold; **{p. 8, l. 8 – p. 9, l. 7}**

(e) in response to the certainty being below the requested threshold, scanning the scanning frequencies of a large number of the access points **{14_1, 14_2, …, 14_n}** located in the defined space **{16}**; **{p. 8, l. 8 – p. 9, l. 7}**

(f) measuring actual signal strengths at each of the scanning frequencies between the at least one mobile device **{12_1}** and the corresponding access point **{14_1, 14_2, …, 14_n}**; **{p. 8, l. 8 – p. 9, l. 7}**

(g) organizing the measured signal strengths in a categorized list; **{p. 8, l. 8 – p. 9, l. 7}**

(h) recalculating the location of the at least one mobile device **{12_1}**; **{p. 8, l. 8 – p. 9, l. 7}**

(i) recalculating a certainty of an accuracy of the recalculated location of the mobile device **{12_1}**; and **{p. 8, l. 8 – p. 9, l. 7}**

(j) comparing the recalculated certainty with the requested threshold. **{p. 8, l. 8 – p. 9, l. 7}**

19. The method as set forth in claim 18, further including:

in response to the recalculated certainty being greater than the requested threshold, selecting at least three access points **{14_1, 14_2, …,**

14_n} from the categorized list based on signal strengths. **{p. 8, l. 8 – p. 9, l. 7}**

20. The method as set forth in claim 18, further including:

in response to the recalculated certainty being below the requested threshold, measuring the number of the scanning frequencies from the categorized list; **{p. 8, l. 8 – p. 9, l. 7}**

repeating steps (h)-(j) until the threshold is exceeded; and **{p. 8, l. 8 – p. 9, 7}**

identifying a set of optimal scanning frequencies. **{p. 8, l. 8 – p. 9, l. 7}**

21. The method as set forth in claim 15, wherein a number of nearest access points **{14_1, 14_2, ..., 14_n}** is a variable based on the determined certainty of the location calculation accuracy. **{p. 8, l. 8 – 16}**

22. The method as set forth in claim 18, wherein the frequencies of the nearby access points **{14_1, 14_2, ..., 14_n}** are different. **{p. 3, l. 31 – p. 4 l. 15}**

23. The method as set forth in claim 9, further including:

handing off a plurality of mobile devices **{12_1, 12_2, …, 12_n}** in the defined space **{16}**; **{p. 7, l. 6 – 21}**

evaluating an overall distribution of the mobile devices **{12_1, 12_2, …, 12_n}** in the defined space **{16}** to determine a capacity of each access point **{14_1, 14_2, …, 14_n}**; and **{p. 7, l. 6 – 21}**

assigning the nearest access points **{14_1, 14_2, …, 14_n}** to each mobile device **{12_1, 12_2, …, 12_n}** based at least on both the determined capacity and the actual signal strength. **{p. 7, l. 6 – 21}**

24. A communications system comprising:

a plurality of mobile wireless units **{12_1, 12_2, …, 12_n}** located within a defined space **{16}** of a wireless local area network **{10}**; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a plurality of access points **{14_1, 14_2, …, 14_n}** disposed at known locations in the defined space **{16}**, each access point **{14_1, 14_2, …, 14_n}** operating at a dedicated frequency; **{p. 3, l. 31 – p. 5 l. 2; FIG. 1}**

a computer processor **{26}** for tracking movement of the mobile units **{12_1, 12_2, …, 12_n}** and reassigning frequencies of closest access points **{14_1, 14_2, …, 14_n}** to each mobile unit **{12_1, 12_2, …, 12_n}**, the computer processor **{26}** being programmed to perform the steps of: **{p. 5, l. 3 – p. 6, l. 28}**

scanning identified scanning frequencies corresponding to each of an identified plurality of nearby access points **{14_1, 14_2, ..., 14_n}**, **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

measuring actual signal strengths at each of the identified frequencies between the at least one mobile device **{12_1}** and the identified access points **{14_1, 14_2, ..., 14_n}**, **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

calculating at least a location of the at least one mobile device **{12_1}** by comparing the actual signal strengths with a map of relative signal strengths at predefined locations in the defined space **{16}**; and **{p. 5, l. 14 – p. 6, l. 3; p. 6, l. 11 – 28}**

assigning nearby access points **{14_1, 14_2, ..., 14_n}** with strongest signals to the at least one mobile unit **{12_1}** based on the calculated location and the map. **{p. 6, l. 3 – 10; p. 6, l. 29 – p. 7, l. 6}**

25. The communication system as set forth in claim 24, further including:

a memory **{42}** in which the map is stored and wherein the map depicts a location of each access point **{14_1, 14_2, ..., 14_n}** in defined space and relative signal strengths of signals from each of the access points

{14_1, 14_2, ..., 14_n} at a multiplicity locations in the defined space **{16}**. **{p. 5, l. 3 – 13}**

26. The communication system as set forth in claim 24, wherein the map is a predefined map generated prior to tracking movement of the mobile units**{12_1, 12_2, ..., 12_n}** by the steps of: **{p. 5, l. 3 – 13}**

measuring a plurality of initial signal strengths at a plurality of measurement locations within a defined space **{16}**; **{p. 5, l. 3 – 13}**

mapping the initial signal strengths in relation to the plurality of measurement locations in the defined space **{16}**; **{p. 5, l. 3 – 13}**

identifying a plurality of locations and scanning frequencies of the access points **{14_1, 14_2, ..., 14_n}** located in the defined space **{16}**; and **{p. 5, l. 3 – 13}**

combining the signal strengths at the plurality of measurement locations and the access point locations and the frequency assigned to each access point **{14_1, 14_2, ..., 14_n}** into the map. **{p. 5, l. 3 – 13}**

APPENDIX (Continued)

XIII. **EVIDENCE SECTION (41.37(t))**

None.

APPENDIX (Continued)

XIV. **RELATED CASES SECTION (41.37(u))**

None.